## SUMMARY OF AMENDMENTS

1. __√__ If checked, an abstract (an amended abstract) is submitted herewith.
2. __√__ If checked, amendment(s) to the drawings are submitted herewith.
3. __√__ If checked, amendments to the specification are submitted herewith.
4. __√__ If checked, amendments to the claims are submitted herewith.

## AMENDMENTS TO THE SPECIFICATION

**Please replace the paragraph beginning at page 1, line 1, with the following rewritten paragraph:**

Safety system of ~~a lift~~ an elevator installation and method for checking a safety system of ~~a lift~~ an elevator installation

**Please insert the following paragraph before the paragraph beginning at page 1, line 3:**

The present application is the National Phase of International Application PCT/CH2004/000393, which claims priority from European Application 03405483.3 filed June 30, 2003.

**Please insert the following heading at page 1, between lines 2 and 3.**

Background of the Invention

**Please replace the paragraph beginning at page 1, line 3, with the following rewritten paragraph:**

The invention relates to a bus-based safety system of ~~a lift~~ an elevator installation and a method for checking the safety system of ~~a lift~~ an elevator installation.

**Please replace the paragraph beginning at page 1, line 5, with the following rewritten paragraph:**

~~Lift~~ Elevator installations comprise a safety circuit in which several safety elements, such as, for example safety contacts and safety switches, are arranged in a series connection. The contacts monitor, for example, whether a shaft door or the cage door is open. The ~~lift~~ elevator cage can be moved only when the safety circuit and thus all safety contacts integrated therein are closed. Some of the safety elements are actuated by the doors. Other safety contacts, such as, for example, an over-travel switch are actuated or triggered by the ~~lift~~ elevator cage.

**Please replace the paragraph beginning at page 1, line 12, with the following rewritten paragraph:**

The safety circuit is connected with the drive or the brake unit of ~~a lift~~ an elevator installation in order to interrupt the travel operation if the safety circuit is opened.

**Please replace the paragraph beginning at page 1, line 14, with the following rewritten paragraph:**

Safety systems with safety circuits of this kind are subject to numerous disadvantages, which are briefly listed in the following on the basis of a few examples:

- Every safety circuit has inherent problems; belonging to these are the length of the connections, the voltage drop in the safety circuit and the comparatively high cost of mounting.
- The individual safety contacts are relatively susceptible to disturbance; unnecessary emergency stops of the ~~lift~~ elevator system can therefore happen.
- The safety circuit does not permit a specific diagnosis; i.e., when the safety circuit is open it is only established that at least one safety contact is open.
- A precautionary maintenance is not possible, since no indications about the state of the safety contacts of the safety circuit takes place. It is thus not possible to preventatively maintain the ~~lift~~ elevator installation and replace worn safety contacts in good time at a point when the ~~lift~~ elevator installation can be shut down without problems, be it within the scope of a periodic inspection, wherein, however,

in many cases taking the ~~lift~~ elevator installation out of operation, which is not in itself necessary, is carried out.

- The availability of the installation can be restricted in an unnecessary manner, since the detection of an open safety contact always has the consequence of placing the ~~lift~~ elevator installation out of operation.

**Please replace the paragraph beginning at page 2, line 1, with the following rewritten paragraph:**

It was therefore proposed to equip ~~lift~~ elevator installations in the future with a safety bus system instead of with the mentioned safety circuit. The safety bus system typically comprises a control unit, a safety bus and one or more bus nodes.

**Please replace the paragraph beginning at page 1, line 10, with the following rewritten paragraph:**

A safety system with safety bus comprises, in the case of some of the proposed ~~forms of embodiment~~ embodiments, at least one bus node which can, for example, be connected with a safety element in order to interrogate the state thereof. Thus, information about the instantaneous state of the safety elements can be provided. In ~~a similar~~ manner similar to conventional ~~lift~~ elevator installations with a safety circuit, a reaction can be triggered depending on the respective state of the safety element.

**Please insert the following heading at page 2, between lines 19 and 20:**

Summary of the Invention

**Please insert the following paragraphs, at page 2, between lines 22 and 23:**

Pursuant to this object, and others which will become apparent hereafter, one aspect of the present invention resides in a safety system for an elevator installation, which safety system includes a control unit, at least one bus node, at least one safety element, and a bus that enables communication between the control unit and the bus node. The bus node includes first switching means that, upon digital presetting of a target magnitude by the control unit, acts on safety element with a first analog signal, and second switching means

that drive an analog signal from the safety element and make digital feedback information available to the control unit by way of the bus.

In another embodiment of the invention the at least one safety element is one or more of the following safety elements: a door contact; a lock contact; a buffer contact; a flap contact; a sensor; an actuator; a travel switch; and an emergency stop switch.

Another aspect of the invention resides in a method for continuous checking of the safety system of an elevator installation wherein the safety system includes a control unit, at least one bus node, at least one safety element, and a bus that enables communication between the control unit and the bus node. The method includes the steps of transmitting digital information by the control unit to the bus node by way of the bus in order to thereby preset a target magnitude, converting the digital information by the bus node in order to prepare a first analog signal that corresponds with the target magnitude or is correlated therewith, applying the first analog signal to, or impression of the first analog signal on, the safety element, deriving or receiving an analog signal at a safety element by the bus node, processing the analog signal by the bus node, and preparing digital feedback information by the bus node for the control unit.

The bus node can be constructed in a redundant manner whereby the transmitting, converting, and applying steps are performed by switching means of the bus node that are different from the switching means that perform the deriving, processing and preparing steps as mentioned above.

**Please delete the paragraph beginning at page 2, line 23 in its entirety.**

**Please delete the paragraph beginning at page 2, line 24 in its entirety.**

**Please insert the following heading at page 3, before line 1:**

Brief Description of the Drawings

**Please insert the following heading at page 3, between lines 8 and 9:**

Detailed Description of the Invention

**Please replace the paragraph beginning at page 3, line 9, with the following rewritten paragraph:**

Fig. 1 shows a first safety system 10, which is part of ~~a lift~~ an elevator installation. The safety system 10 comprises a control unit 11, at least one bus node 13, and a bus 12 in order to enable communication between the control unit 11 and the bus node 13. In Fig. 1 there is indicated a safety element 16 which, for example, interrogates the state of a shaft door or cage door or monitors a lock. As safety elements in connection with the present invention there are denoted safety-relevant elements such as, for example, door contacts, lock contacts, buffer contacts, flap contacts, sensors, actuators, travel switches (for example on the inspection panel or in the feedback control) and emergency stop switches. The bus node 13 comprises a first switching means 14 and second switching means 15.

**Please replace the paragraph beginning at page 4, line 23, with the following rewritten paragraph:**

It is also possible in the case of preparation of the analog signal to undertake a qualitative evaluation of the first analog signal, wherein the evaluation is not safety-relevant and can therefore be carried out entirely or partly by the bus node 13. This qualitative evaluation allows a diagnosis about the qualitative state of the safety element (for example, the wear and/or the functional capability of a contact can thus be assessed). It is particularly advantageous to carry out this diagnosis in the bus node 13 in order to ~~minimise~~ minimize data traffic on the bus 12 and thus not load the safety-relevant control unit 11. The result of the diagnosis is provided as digital diagnostic information.

**Please replace the paragraph beginning at page 6, line 1, with the following rewritten paragraph:**

If the voltage value ascertained by the switching means 15 lies outside the tolerance range, then a reaction can be initiated. This takes place, for example, by the control unit 11. In the case of a small deviation a service call can be triggered by the control unit 11. In the case of a greater deviation this has to be interpreted as "faulty function" and lead to, for example, an emergency stop of the ~~lift~~ elevator installation.

**Please replace the paragraph beginning at page 6, line 6, with the following rewritten paragraph:**

Figs. 2A and 2B show a second safety system 20, which is part of ~~a lift~~ an elevator installation. The safety system 20 comprises a control unit 21, at least one bus node 23, and a bus 22 in order to enable a communication between the control unit 21 and the bus node 23. In Fig. 2A and Fig. 2B there is shown a switch 26 as a safety element, which, for example, interrogates the state of a shaft door or cage door or monitors a (shaft door) lock. The bus node comprises first switching means 24 and second switching means 25.

**Please replace the paragraph beginning at page 11, line 1, with the following rewritten paragraph:**

The safety system according to the invention is preferably so constructed that it serves the purpose of detecting at least a part of the safety-relevant states of ~~a lift~~ an elevator installation separately from the actual ~~lift~~ elevator control and, on occurrence of problems, of triggering reactions in that the safety system or the control unit directly intervenes in the ~~lift~~ elevator control.

**Please replace the paragraph beginning at page 15, line 2, with the following rewritten paragraph:**

Safety system ~~(10) of~~ ~~a lift~~ an elevator installation, with a control unit ~~(11)~~ , a bus node ~~(13)~~, a safety element ~~(16)~~ and a bus ~~(12)~~, which enables a communication between the control unit ~~(11)~~ and the bus node ~~(13)~~. The bus node ~~(13) comprises~~ includes a first switching ~~means (14)~~ arrangement, which on digital presetting by the control unit ~~(11)~~ acts on the safety element ~~(16)~~ by a first analog signal. The bus node ~~(13)~~ additionally ~~comprises~~ includes a second switching ~~means (15)~~ arrangement which ~~derive~~ derives an analog signal from the safety element ~~(16)~~ and ~~make~~ makes digital feedback information available to the control unit ~~(11)~~ by way of the bus ~~(12)~~.

~~[Fig. 1]~~